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Andy Korsak VE3FZK/W6  
504 Lakemead Way  
Redwood City CA 94062

**vol. 23**

JUNE, 1979

# PAARA

## Graphs



**palo Alto  
AMATEUR  
RADIO ASSN.**

MENLO PARK C.D. RADIO CLUB, K6YQT

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PAARagraphs is the official organ of

The Palo Alto Amateur Radio Association and the Menlo Park Civil Defense Radio Club

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Membership in PAARA is \$4.00 per calander year (payable in January) which membership includes a subscription to PAARagraphs. Interested others may subscribe to PAARagraphs for \$1.00. Make payment to:

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## REGULAR MEETING

FRIDAY

JUNE 1, 1979

7:30 p.m.

Rooms 15-17, Menlo Park Recreation Center, Civic Center  
Alma at Mielke, Menlo Park

## OPTICON—COMMUNICATIONS AID TO THE BLIND

by

Al Elge, AG6D

Al will describe and demonstrate the OPTICON—  
an optical to tactile converter to enable the  
sightless to read, and a talking calculator  
that proofs as you punch the keys.

CIRCLE THE DATE

FRIDAY

June 1, 1979

7:30 p.m.

**PAST CORNER:** The May 4 meeting—the first of the year to start in daylight—began about 7:40. Bob, K6SEM, got the evening going and various attendees kept it moving until about 9:30.

Fred, K6YT, gave a report on the status of Name Tag orders, antenna equipment purchased for the Club, a request for separate transmitter-receiver combinations for Field Day so filters can be used on the receivers input, especially on phone. Fred noted the PAARA Auction and Flea market date is the same as that suggested by ARRL for SEP, October 6.

Shannon, K6TNY, reported that the running gear and lights were in good shape on the Club Mobile Home and gave it a clean bill-of-health for being mobile. Bob, K6SEM, organized a cosmology class to be led by Don, W6CFZ, who has a bucket of paint.

Jim, K7UDG, gave a report on the Explorer activity during their Scout-O-Rama held May 5 and thanked Ken, WA6NYB, Don, W6CFZ, Al, AG6D, Dusty, K6MPN, Bob, K6SEM and Gerald, W6PPK, for help in putting the station together at Stanford.

Liza, WA7WXA reported the Explorers would organize communications for the Western Wheelers June 3 and requested help—gear and operators for two or three stations in addition to the two they can muster among their group.

Steve, K6FS, gave a report on the May 2 CCRC meeting.

A raffle, coffee and cookies, and extended eye-ball QSO's were included in the program, after which operating practices and events, and announcements of interest to members were made by many of the 38 attendees. And even with petrol a little difficult to get, some drove a gallon worth to get there.

**BOARD CORNER:** Board Members assembled over an extended period Wednesday, May 9. The early birds worked on the trailer with wire brushes and the later arrivals played with silly putty until all the rusty spots were cleaned and repaired. By dark most preparation for painting had been completed and everyone was too tired to have much fight for the Business Meeting.

Andy, VE3FZK, again asked for aid in getting suitable speakers for meetings. His computer business has removed him from many of his previous contacts and he is very pressed for time, so anyone who hears, or hears of, an interesting speaker, should let him know of it.

Dusty, K6MPN, access to the gear of the estate of Eldridge, K6KEV, A list of equipment was presented to the Board which suggested it be listed in the UNCLASSIFIED CORNER of PAARA-graphs.

The exhausted group retired to the folksy spot down the block and around the corner for beer and skittles about 9 p.m.

**FIELD DAY CORNER:** An open Field Day Planning meeting was held April 25 at the Club trailer.

It was decided that the Contest would be treated as a contest and that the best effort of the Club would be presented. Lots of fun setting up and breaking down, but for the period of operation there would be no frills. If you are an aggressive operator and not included in the remainder of this section, see Bob, K6SEM, or Fred, K6YT.

Housing this year is expected to consist of the Club Trailer, two motor homes, and several campers in the hope that the climate will be more easily controlled than the hot-by-day, cold-by-night tents.

The Club generator is expected to do yeoman service but in case a fuel pump goes or it blows a gasket, Erv, W6YFM, plans to make his 2.5KW unit available. One more standby unit would be desirable even though the Club unit has worked faithfully in years past.

In the belief that the hungry work harder, no big deal is planned to feed the weary. Coffee, sandwiches, candy bars and maybe doughnuts will be available on a table whose legs will be immersed in a bucket of water to discourage six and eight legged varmints.

There will be five stations this year in the "four transmitter class" One more CW Team Captain is needed. Cam, K6RU, is one. Phone Team Captains are Bob, W1ARR/6 and Jim, K7UDG. Swede, KA6BEU, will head the Novice Operation.

Team Captains were given the responsibility to set up a week early, check fittings and gear, and to check for interference with others. They were also responsible for the talent they choose.

Of the four transmitters, one phone and one CW will operate on 40, 15 and 10 meters; the other two on 80, 20 and 10. Novices will operate on 80, 15 and 10.

The planning is well under way. It is going to be a lot of fun, a lot of work, and, if compared to a track meet, the first team will be running. It is not planned as a picnic. The site is a boat yard, full of hazards to those who don't mind their manners. It is not a place to bring the kiddies while momma "gets the afternoon off." Take THEM to the Junior Museum—we may miss you, but not the climbers or the rock throwers.

Save all week—ends in June—the first for set-up and checking, June 23–24 for operating and the 30th for clean-up.

Those who have expressed an interest operating include Terry, N6RY, Eric, W6DU, Swede, KA6BJU, Gerry, W6NIR, Bob, K6SEW, Clay, K5OSQ, Don, W6CFZ, Jock, N6YV, Ken, WA6NYB, Shannon, K6TNY, Fred, K6YT, Liza, WA7WXA, Jim, K7UDG, Cam, K6RU and N6DX.

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**EXPLORERS CORNER:** Post 599 has been involved in quite a few activities this past month. First was the Scout-O-Rama where we set up a 30 foot tower, 80 meter dipole, 40 meter dipole and a two meter antenna. We had great fun making contacts all afternoon and we got a blue ribbon to boot! We thank all PAARA for the equipment loaned to us.

Friday night before the Scout-O-Rama we worked DX, contacting England, Poland, Germany, Austria, and Russia. We all slept there over night and Jim, K7UDG, and Lisa, WA7WXA, got a rather rude awakening. Also we recruited some new hopeful members.

The weekend of May 11-13 we were at Fresno for the annual hamfest. They had lots of interesting displays and lectures, such as the one on ham radio and computers. Lisa took 4th place in the QLF contest and Bob, the Post's president, picked up a nice piece of 2 meter gear.

All in all it's been a great month and we are all looking forward to lots more camps. Anyone 14-21 (the rules can be bent) that would like to join can call Jim or Lisa at 325 8309.

'73 de Sandy Large.

(editors' note: Post 599 earned a pot full of funds selling tickets to the Scout-O-Rama, and did pretty well in the drawing that took place later. No longer a poor cousin—more like a rich uncle. Congratulations. Now...don't be bashful, sign up!).

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**CUT-AND- PASTE CORNER:** Please add the following to your April Roster:

H. Robert Arcularius	WA6ION	640 Fairmede Ave.	Palo Alto, CA	94306	493 0797
Robert (Rob) De Liban	W6FGL	1015 Lemon St.	Menlo Park, CA	94025	322 6906
John Vercelli	KA6ENX	151 Calderon Av. #342	Mt. View, CA	94041	968 8525
Donald H. Brodie	W6PGQ	315 Cotton St.	Menlo Park, CA	94025	323 0353

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**NOVICE CORNER:** John Fraher, KA6FRK, got his license, an honorary membership to PAARA (one year) and a name tag (ordered), May 20. He will be added to the Cut-and-Paste Corner next month. For the "First Contact Award" he can be reached at 23000 Cristo Rey Dr., Los Altos, 967 3822. Good luck to him, and either Tom, KN6DZB or Bob, W6BFT, have the best chance of being his first contact.

**PUBLIC RELATIONS CORNER:** See the CUT-AND-PASTE CORNER for new members. Some are old new members and we welcome them back. Rob and John are new to your editor and we are all glad to have them with us. Visitors to recent meetings include Willy Waters of Palo Alto, Chris and Stephen Schellenberg from Menlo Park, Jim Koski of Los Altos, Peter Griffith, Los Altos, Jerry Hogsett from Sunnyvale and Ed Barrett from Redwood City. Look for them at up-coming meetings and make them feel at home. Chris is WB6WBK, Ed, W6RBO Jim WB6PZT and Jerry, W6PEK. If you hear them on the air, invite them back. If you see the others, let them know we enjoyed having them with us.

Further changes in the April Roster: Under corrections last month correct the correction for George Ice, K6CMT, to read: 855 Somerset Ct. (one em). Add a phone to John Arnold: 737 0123.

**CCRC CORNER:** Ten clubs were represented at the May 2 CCRC meeting, as much as ten times the number attending some recent gatherings.

It was announced that a new repeater, W6PW/R, 144.55/145.15 has been started by the San Francisco Radio Club. It is not yet busy and access can be had from the Menlo Park area. Try it.

NPEC is planning a 100-watt 160-meter AM transmitter on 1865kHz for code practice, k bulletins, propagation forecasts, etc., but no target date has been set for operation. (de Steve, K6FS)

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**CONVERSION CORNER:** Don, W6CFZ, reports that so far five CB rigs have slipped from 27 to 28 MHz with good success. A few bucks, an hour or two and the job is done. See Don for details...10 meters is pretty good now.

**TECHNICIANS CORNER:** Carl Nicholson, KA6FKG, has mastered the hand key and progressed to the more complicated mike switch on the Monday PAARANet May 14, 147.45MHz. Glad to hear you, Carl, either CW or voice.

**GENERAL CORNER:** Nothing here.

**ADVANCED CORNER:** Nothing there.

**EXTRA CORNER:** Nothing anywhere.

UNLICENSED CORNER: Dave Daniel borrowed a receiver from Swede, KA6BEU, got busy copying code (W6QIE near 3590kHz) nightly at 8 except for a respite Mondays. To try for a Field Day license he took the code test Monday, May 21 and passed. Form 630 on its way. CONGRATULATIONS Dave.

Bill Frye confesses a long standing interest in amateur radio—since Boy Scout days (now they have the Explorers Post) but has trouble getting back to it—and enough time to work up code speed. We enjoy him at the meetings and hope things ease up a little.

Bill McElhimney gets a far-away look in his eye when questioned about his licensing prospects. It can't be that far away, Bill. One of these days KFS will say "National Weather Service San Francisco Warnings and forecasts valid...." and that at 20 w/m and more than enough to pass the Novice Exam. It'll come loud and clear.

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OPERATING CORNER: This should have been at the bottom of page 4, but the other entry fit better. Eric, W6DU, has grown tired of his self-made contest of seeing how many countries he could work calling "CQ de W6DU k". More than he could count—yes, more than 20. Now the project has been to see how many stations he can work with one "CQ de W6DU k" Nineteen was the last count available but several weeks have gone by since this last reporting. Which goes to show—you don't have to be a novice to have fun.

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THIS AIN'T FOR JOKES COLUMN: Actually, the heading should read:

#### Superconducting Magnets: Low-Temperature Powerhouses

A relatively recent discovery has led to the now-common utilization of superconducting magnets in physics and chemistry research settings. What is a superconductor? How are these fantastic tools used in laboratories?

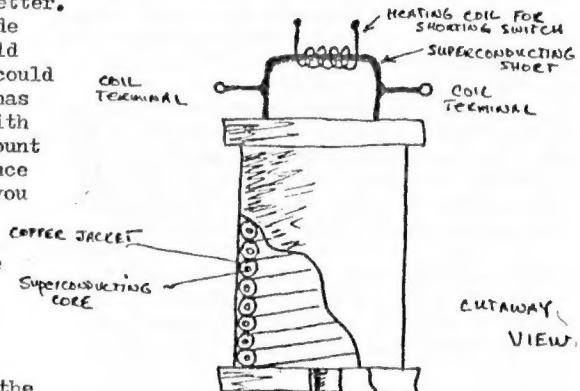
A superconductor is a material that acts like a normal conductor of electricity at normal room temperatures. However, when this material is cooled way down to near absolute zero (around -450° F), its resistance drops from some finite value to zero. That's right — a superconductor has no resistance at all — not even the tiniest fraction of an ohm. Thus it is a perfect conductor of electricity.

Such materials exist, and they're made of relatively poor conductors at room temperatures. You might expect that silver or copper (excellent conductors in normal environments) would make great superconductors when cooled, but the there's no temperature below which they exhibit zero resistance. Instead, a material like lead will superconduct once cooled past a critical

transition temperature. Then, its resistivity drops absolutely to zero. Certain alloys have been made which superconduct at slightly higher transition temperatures as well.

If you wind a coil of wire out of superconducting material and apply an electric current, you of course get an electromagnet. But here's a real twist — if you then short the ends of the coil together and remove the current source from the electromagnet, the current still flows around in the coil and you still have a magnet! So even when there's no external source of power, since there's no resistive loss in the coil, the magnet will persist indefinitely. Experiments have shown this to be true.

I've drawn a diagram of a typical superconducting magnet below.



You'll notice a copper jacket around each wire, the material itself in the shape of a coil, and a shorting switch. The shorting switch is simply a superconducting short across the coil which is held in its "normal" (open) mode by a small heater wrapped around it. After you charge the coil with current — I've seen small magnets take 100 amperes — you turn off the heating juice and the coil superconductively shorts itself — persisting as a magnet without the need for external power.

You can get enormous magnetic fields out of one of these devices. The magnetic field of the earth at its surface is on the order of magnitude of one Gauss. With a small superconducting magnet the size of an oatmeal box, peak magnetic fields of 60,000 gauss are easily obtainable.



You're probably wondering what that copper jacket is doing around each turn of the coil. Won't it short out the whole thing? Don't forget — copper will not superconduct so when the actual coil windings start superconducting, the finite resistance of the copper looks infinite to the absolutely zero resistance of the superconductor. Hence the copper is out of the circuit, and yet it serves another purpose. As you know, coils store magnetic energy just like capacitors store electrostatic energy. If the temperature around your superconducting magnet accidentally rises above the critical point where the material ceases to be a superconductor, all that stored energy gets immediately dissipated in the finite resistance of the now-normal coil. The thing could actually explode! Wrapping the copper tubing around each turn will dissipate the heat evenly and avoids such a catastrophic quench.

Prospects for the future? If we could develop an alloy capable of superconducting at a relatively high temperature — the temperature of readily available liquid nitrogen, for example — we might have a practical system of lossless power transmission. A superconducting magnet-suspended high-speed railway could give us very rapid public transit. And what's the "Q" of a coil with zero resistance?? Think of the efficiency and selectivity of a ham rig with superconducting components!!! Not to mention antennas....  
(de Rick, WA6NCX)

(editors note: The above article was for the April issue. A member wonders: "Do you really believe this, Swede?"....and your editor would like a demonstration, too.)

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**NAMETAG CORNER:** Name tags have been ordered and should be available at the next meeting for Liza, WA7WXA; Willard, WB6WHZ; Jim, K7UDG; Peter, WD6CVP; Don, W6AAQ; David, W6JHU; Walt, W6ASH; Leonard, W6HLE; Clay, K5OSO; Jim, WB6YOY; Robert, WA6MIV; Larry, KA6DZM.

Still to be ordered are tags for Carl, KA6EKG; Nolan, KB6LV; Dave Daniel; Bob, W6ARR; Robert, WA6ION; Rob, W6FGL; John, KA6EMX and Dave, W6FGQ.

Even those to be ordered at press time may make it. To be sure it did or didn't, come to the June 1 meeting.

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**SWAPFEST CORNER:** Santa Maria Radio Swapfest, 10:00 a.m. to 4:00 p.m., Sunday, June 17, BBQ served at 1 p.m. Union Oil Picnic Grounds, 1 mile south of Clark Avenue on U. S. 101, south of Santa Maria. Prizes. For more info: flyer at the meeting or phone 805 733 4026.

**FLEA MARKET CORNER:** Any upcoming flea markets missing this column? Get word to PAARA-graphs early—the word will be repeated until the event takes place.

June 6 FMARC-FLEAMARK 9 am to 3 pm  
Foothill College, Los Altos Hills.

June 17 SCCARA FLEA MARKET at QUEMONT'S  
1000 S. Bascom Av. San Jose

Sept. 9 FARS  
Foothill College, Los Altos Hills.

AND

Oct. 6 PAARA Auction/Flea Market, AMPEX  
Cafeteria, Redwood City.

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**UNCLASSIFIED CORNER:**

**WANTED:** 8 ea. tube, type 811-A, and  
**FOR SWAP OR SELL:** 4X250-B's

See Ed, W6RBO at the meeting or call him at 368 8745.

**WANTED:** Collins power supply, 516F2 for a KWM2.

Call Rich, W6WBT at 851 1111.

**FOR SALE:** Collins KWM2A Transciever  
30L-1 Linear Amplifier  
312-B4 Station Control  
516F-2 AC Power Supply  
MP-1 12V DC Power Supply  
SF-2 Station Microphone  
MW-2 Mobile Microphone  
Low Pass Filter.

All of the above for \$2,000. Call Bill McKay at (office) 415 965 3333, (home) 968 4655.

**WANTED:** By someone out there, a Gonset Communicator IV. Leads to two came up on PAARANET, 147.45 MHz. Come to the meeting June 1...maybe it'll be there.

**PAARA meetings:** July 6. Field Day results. Then August 3, September 7, October 5, PAARA Auction/Flea Market October 6, November 2, Nomination Night, and Dec. 7, Pearl Harbor Day.

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K6DTX  
23 YEARS

10-6 MON-FRI  
10-5 SAT

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CHANNEL	6 MHz Tx	8 MHz Tx	12 MHz Tx	16 MHz Tx	40 MHz Rx	50 MHz Rx	INCIDENT Rx
146.01	6.08375	8.111666	12.1675	18.25125	45.103333	14.923333	15.034144
146.04	6.08500	8.113333	12.1700	18.25500	45.113333	14.926666	15.037777
146.07	6.08625	8.115000	12.1725	18.25875	45.123333	14.930000	15.041111
146.10	6.08750	8.116666	12.1750	18.26250	45.133333	14.933333	15.044444
146.13	6.08875	8.118333	12.1775	18.26625	45.143333	14.936666	15.047777
146.16	6.09000	8.120000	12.1800	18.27000	45.153333	14.940000	15.051111
146.19	6.09125	8.121666	12.1825	18.27375	45.163333	14.943333	15.054444
146.22	6.09250	8.123333	12.1850	18.27750	45.173333	14.946666	15.057777
146.25	6.09375	8.125000	12.1875	18.28125	45.183333	14.950000	15.061111
146.28	6.09500	8.126666	12.1900	18.28500	45.193333	14.953333	15.064444
146.31	6.09625	8.128333	12.1925	18.28875	45.203333	14.956666	15.067777
146.34	6.09750	8.130000	12.1950	18.29250	45.213333	14.960000	15.071111
146.37	6.09875	8.131666	12.1975	18.29625	45.223333	14.963333	15.074444
146.40	6.10000	8.133333	12.2000	18.30000	45.233333	14.966666	15.077777
146.43	6.10125	8.135000	12.2025	18.30375	45.243333	14.970000	15.081111
146.46	6.10250	8.136666	12.2050	18.30750	45.253333	14.973333	15.084444
146.49	6.10375	8.138333	12.2075	18.31125	45.263333	14.976666	15.087777
146.52	6.10500	8.140000	12.2100	18.31500	45.273333	14.980000	15.091111
146.55	6.10625	8.141666	12.2125	18.31875	45.283333	14.983333	15.094444
146.58	6.10750	8.143333	12.2150	18.32250	45.293333	14.986666	15.097777
146.61	6.10875	8.145000	12.2175	18.32625	45.303333	14.990000	15.101111
146.64	6.11000	8.146666	12.2200	18.33000	45.313333	14.993333	15.104444
146.67	6.11125	8.148333	12.2225	18.33375	45.323333	14.996666	15.107777
146.70	6.11250	8.150000	12.2250	18.33750	45.333333	15.000000	15.111111
146.73	6.11375	8.151666	12.2275	18.34125	45.343333	15.003333	15.114444
146.76	6.11500	8.153333	12.2300	18.34500	45.353333	15.006666	15.117777
146.79	6.11625	8.155000	12.2325	18.34875	45.363333	15.010000	15.121111
146.82	6.11750	8.156666	12.2350	18.35250	45.373333	15.013333	15.124444
146.85	6.11875	8.158333	12.2375	18.35625	45.383333	15.016666	15.127777
146.88	6.12000	8.160000	12.2400	18.36000	45.393333	15.020000	15.131111
146.91	6.12125	8.161666	12.2425	18.36375	45.403333	15.023333	15.134444
146.94	6.12250	8.163333	12.2450	18.36750	45.413333	15.026666	15.137777
146.97	6.12375	8.165000	12.2475	18.37125	45.423333	15.030000	15.141111
147.00	6.12500	8.166666	12.2500	18.37500	45.433333	15.033333	15.144444
147.03	6.12625	8.168333	12.2525	18.37875	45.443333	15.036666	15.147777
147.06	6.12750	8.170000	12.2550	18.38250	45.453333	15.040000	15.151111
147.09	6.12875	8.171666	12.2575	18.38625	45.463333	15.043333	15.154444
147.12	6.13000	8.173333	12.2600	18.39000	45.473333	15.046666	15.157777
147.15	6.13125	8.175000	12.2625	18.39375	45.483333	15.050000	15.161111
147.18	6.13250	8.176666	12.2650	18.39750	45.493333	15.053333	15.164444
147.21	6.13375	8.178333	12.2675	18.40125	45.503333	15.056666	15.167777
147.24	6.13500	8.180000	12.2700	18.40500	45.513333	15.060000	15.171111
147.27	6.13625	8.181666	12.2725	18.40875	45.523333	15.063333	15.174444
147.30	6.13750	8.183333	12.2750	18.41250	45.533333	15.066666	15.177777
147.33	6.13875	8.185000	12.2775	18.41625	45.543333	15.070000	15.181111
147.36	6.14000	8.186666	12.2800	18.42000	45.553333	15.073333	15.184444
147.39	6.14125	8.188333	12.2825	18.42375	45.563333	15.076666	15.187777
147.42	6.14250	8.190000	12.2850	18.42750	45.573333	15.080000	15.191111
147.45	6.14375	8.191666	12.2875	18.43125	45.583333	15.083333	15.194444
147.48	6.14500	8.193333	12.2900	18.43500	45.593333	15.086666	15.197777
147.51	6.14625	8.195000	12.2925	18.43875	45.603333	15.090000	15.201111
147.54	6.14750	8.196666	12.2950	18.44250	45.613333	15.093333	15.204444
147.57	6.14875	8.198333	12.2975	18.44625	45.623333	15.096666	15.207777
147.60	6.15000	8.200000	12.3000	18.45000	45.633333	15.100000	15.211111
147.63	6.15125	8.201666	12.3025	18.45375	45.643333	15.103333	15.214444
147.66	6.15250	8.203333	12.3050	18.45750	45.653333	15.106666	15.217777
147.69	6.15375	8.205000	12.3075	18.46125	45.663333	15.110000	15.221111
147.72	6.15500	8.206666	12.3100	18.46500	45.673333	15.113333	15.224444
147.75	6.15625	8.208333	12.3125	18.46875	45.683333	15.116666	15.227777
147.78	6.15750	8.210000	12.3150	18.47250	45.693333	15.120000	15.231111
147.81	6.15875	8.211666	12.3175	18.47625	45.703333	15.123333	15.234444
147.84	6.16000	8.213333	12.3200	18.48000	45.713333	15.126666	15.237777
147.87	6.16125	8.215000	12.3225	18.48375	45.723333	15.130000	15.241111
147.90	6.16250	8.216666	12.3250	18.48750	45.733333	15.133333	15.244444
147.93	6.16375	8.218333	12.3275	18.49125	45.743333	15.136666	15.247777
147.96	6.16500	8.220000	12.3300	18.49500	45.753333	15.140000	15.251111
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